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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,718	09/17/2003	Philippe Staib	B1180/20019	4374

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EXAMINER	
SOUW, BERNARD E	
ART UNIT	**PAPER NUMBER**
2881	

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/664,718	STAIB, PHILIPPE	
	Examiner	Art Unit	
	Bernard E Souw	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09/17/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), (DE 02020889.8), filed 09/18/2002, which papers have been placed of record in the file.

Preliminary Amendment

2. The Preliminary Amendment filed 12/17/2003 has been entered.

The title has been changed.

The Application Data Sheet has been amended by a Declaration (37 CFR 1.63) filed 12/17/2003 regarding the Inventor's citizenship.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "*near*" used in the wording "*the second deflection stage is arranged near the sample*" recited in claim 2 is a relative term which renders the claim indefinite. The term "*near*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 5-9 and 14-16 rejected under 35 U.S.C. 102(a) and (e) as being clearly anticipated by Winkler et al. (USPAT 6,576,908).

► Regarding claims 1, 2, 14 and 15, Winkler et al. disclose an electron source, as recited the Abstract/ll.1-6 and Col.1/ll.31-32 and Col.2/ll.54-58, wherein electron beam is primarily used in Winkler's invention, as expressly recited in Col.2/ll.4-9, the electron source comprising an electron emitter 3 for generating the electron beam 4, as shown in Fig.1 and recited in Col.4/ll.36-39; a first deflection stage 11 recited in Col.4/ll.44-45 for radiating the electron beam 4 onto a sample, which is not shown in the figures but

expressly recited in Col.2/ll.1-4 & 8-14 & 15-16; and a second deflection stage 12 being arranged between the first deflection stage 11 and the sample, as shown in Fig.1, the second deflection stage 12 being adapted for a beam orientation correction, as expressly recited in Col.5/ll.8-10 in reference to Fig.1 and in Col.7/ll.34-46 in reference to Fig.3, wherein Winkler's wordings "*redirects*" and "*back to optical axis*" inherently have the same meaning as Applicant's claim limitation of "*being adapted for beam orientation correction*". Specifically regarding claim 15, the limitation that the beam traveling between the two deflections stages becomes elongated from the axis is inherent in Winkler's. The further limitation that the second deflection stage 12 is bending the beam back towards the axis 9 of the electron source 3 is expressly recited in Col.7/ll.39-46.

► Regarding claims 3, 5 and 16, Winkler's electron beam extending from the first deflection stage 11 to the second deflection stage 12 is enclosed inside or shielded with a casing, as shown in Fig.1 and Fig.3 by the outlines of a box, which is defined as vacuum chamber 1 in Col.5/ll.11-15, the casing being inherently connected with a pumping device not shown in the figures but expressly recited in Col.1/ll.31-35, Col.2/ll.53-54, Col.5/ll.19-21, but especially in Col.5/ll.63-67.

► Regarding claim 8, Winkler's device has a third deflection stage 13 provided between the second deflection stage 12 and the sample, as shown in Fig. 1 + 3 and recited in Col.7/ll.51-60.

► Regarding claims 6, 7 and 9, Winkler's electron beam is equipped with an aperture 8 near the second deflection stage 12, i.e., between the second deflection

stage 12 and the third deflection stage 13, as shown in Fig.1 & 3 and recited in Col.5/ll.8-11 & 60-63 and Col.6/ll.13-14 & 24-25 & 58-59. Specifically regarding claim 7, the limitation that the aperture has a point (circular) shape is inherent in Winkler's, as indicated by the circular apertures shown in Fig.5.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 4 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winkler et al. in view of Bryson, III et al. (USPAT 5,466,933).

► Regarding claims 4 and 17, Winkler et al. show all the limitations of claims 4 and 17, as previously applied to claims 1-3 and 16, except the recitation of using a casing made of or covered with magnetic field shielding material.

Bryson III et al. disclose an electron beam device shown in Fig.1+2, which is housed in an enclosure with magnetic field shielding, as recited in Col.2/ll.8-11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Bryson's magnetic shielding to Winkler's electron beam device, in order to screen out the effect of earth's magnetic field and other magnetic stray fields from disturbing the path of the electron beam inside the housing, as generally known in the art, and is also inherently understood in Bryson III et al.

One of ordinary skill in the art would have been motivated to modify Winkler's electron source by Bryson's magnetic shielding, since the problem of electron beam sensitivity to earth's magnetic field and other stray fields are well known in the art, and enclosing or covering the beam housing with magnetic shielding material is conventional.

► Claim 18 recites the same limitation as the previously rejected claim 5. Claim 18 is therefore rejected as being obvious over Winkler et al., now with secondary prior art Bryson, III et al., only because of its dependency to claim 17.

9. Claims 11 and 12 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Winkler et al. in view of Bryson, III et al..

Claims 11 and 12 recite the wording Reflection High Energy Electron Diffraction (RHEED) which has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

► Winkler et al. show all the limitations of claims 11 and 12, as previously applied to the parent claim 1, except the recitations of a sample holder and a detector (claim 11) and that the holder being positioned in a vacuum chamber.

Although not expressly recited in the disclosure, a sample holder is inherent in Winkler's device, as expressly implicated in Col.2/ll.1-4 & 8-14 & 15-16, since a sample as recited must inherently be placed on a sample holder, the latter having to be located in vacuum, in order to avoid scattering by ambient atmosphere, as recited by Winkler et al. in Col.1/ll.31-34.

However, Winkler's disclosure does not expressly recite the electron being used for Reflection High Energy Electron Diffraction (RHEED). Bryson III et al. recite that their modification of Winkler's device can be used for RHEED, as recited in Col.2/ll.48-49. Furthermore, Bryson's device includes the use of a detector, as recited in Col.3/ll.42-45. This is sufficient to reject Applicant's claims 11 and 12.

Note: There is no need for a detailed description of RHEED device to be found in Bryson's disclosure, since Applicant neither provides any description of RHEED in the limitations of claims 11 and 12. Although applications for RHEED are found as examples or embodiments in the specification, they were not claimed explicitly. Nor were the words that are used in the claims defined in the specification to require these limitations. A reading of the specification provides no evidence to indicate that these limitations must be imported into the claims to give meaning to disputed terms. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Winkler et al. in view of Huntzinger (USPAT 4,952,814).

Winkler et al. show all the limitations of claim 10, as previously applied to claim 6, except the recitation of covering the aperture with a foil capable of transmitting the electron beam.

Huntzinger discloses an electron beam device, in which the electron beam is passed thorough an aperture that is covered by a foil, as recited in Col.3/ll.60-67 and Col.4/ll.1-7 as well as in Col.4/ll.36-42.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to cover Winkler's aperture with a foil, in order to effectively reduce the electron beam current, as taught by Huntzinger in Col.4/ll.1-7.

11. Claims 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winkler et al. in view of Huntzinger, Jacob et al. (USPAT 5,235,239) and Bryson, III et al..

► Claim 13 recites the limitation of covering the aperture with a foil capable of transmitting the electron beam, as previously recited in claim 10, which has been previously rejected for being obvious over Winkler et al. in view of Huntzinger.

However, Winkler et al. as modified by Huntzinger do not recite the sample holder being positioned in the atmosphere. It is well known in the art, that, because Winkler's as modified by Huntzinger's electron beam is transmitted through a foil, the foil thickness can be made thick enough so as to withstand the atmospheric pressure difference to vacuum, thus allowing the sample as well as the sample holder to be

placed in atmospheric pressure. This general knowledge in the art is disclosed by Jacob et al. in Col.1/ll.35-68 and Col.2/ll.1-68.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Winkler's device as modified by Huntzinger by placing the sample holder in ambient atmosphere, in order to easily and directly manipulate the sample by mechanical means, as taught by Jacob et al. in Col.2/ll.30-42.

► Claim 19 recites the same limitations as claim 13, and is therefore rejected as being obvious over Winkler et al. in view of Huntzinger, Jacob et al. and Bryson, III et al..

► *Note:* Bryson et al. is needed as a further prior art, just because the dependency of the present claim 13 on its parent claims 11, and claim 19 on parent claim 18, both parent claims having been previously rejected as being obvious over Winkler et in view of Bryson, III et al.

Relevant Prior Art

12. This prior art made of record and not relied upon is considered pertinent to applicant's disclosure: USPAT # 6,677,581, issued on 01/13/2004 to Koinuma et al., is found to claim the RHEED as a subject matter of the disclosure, and therefore could have been used for rejecting most of the present claims under 35 USC § 102(e) and § 103(a), since the § 371 (c)(1), (2), (4) date (02/14/2001) is earlier than the claimed priority date of the present application (09/18/2002). Therefore, in the event Applicant modifies the present claims so as to expressly recite the use of the electron beam device for RHEED in the body of the claims, and not just in the preamble, the Koinuma

reference will be activated and used as a prior art reference to reject all of Applicant's claims.

Communications

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw whose telephone number is 571 272 2482. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571 272 2477. The central fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for regular communications as well as for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

bes
May 3, 2004

JOHN R. LEE
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